Practitioner's Docket No. 2667/108 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Leonidas Diamantopoulos

Application No.: 10/506,744
Filed: 03/08/2005
For: A Catheter

Group No.: 3736
Examiner: Hand, Melanie J

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION--37 C.F.R. § 41.37)

1. Transmitted herewith, is the APPEAL BRIEF in this application, with respect to the Notice of Appeal filed on August 19, 2008.

2. STATUS OF APPLICANT

This application is on behalf of other than a small entity.

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 C.F.R. § 41.20(b)(2), the fee for filing the Appeal Brief is:

other than a small entity	$540.00
Appeal Brief fee due	**$540.00**

4. EXTENSION OF TERM

The proceedings herein are for a patent application and the provisions of 37 C.F.R. § 1.136 apply.

Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

5. TOTAL FEE DUE

The total fee due is:

Appeal brief fee	$540.00
Extension fee (if any)	$0.00
TOTAL FEE DUE	**$540.00**

6. FEE PAYMENT

Authorization is hereby made to charge the amount of $540.00 to Deposit Account No. 19-4972.

7. FEE DEFICIENCY

If any additional extension and/or fee is required, and if any additional fee for claims is required, charge Deposit Account No. 19-4972.

Date: October 17, 2008

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Diamantopoulos, L	Atty. Dkt:	2667/108
Serial No:	10/506,744	Art Unit:	3736
Date Filed:	March 8, 2005	Examiner:	Hand, Melanie J.
Invention:	**A Catheter**		

APPEAL BRIEF

Pursuant to the Notice of Appeal filed August 19, 2008, Applicant submits this Appeal Brief.

Real Party in Interest

NV Thermocore Medical Systems SA, Merelbeke, Belgium.

Related Appeals and Interferences

None.

Status of Claims

Claims 15-29 are pending. Claims 15-17, 19 and 24-29 stand rejected under 35 U.S.C. §102(a) as being anticipated by Diamantopoulos (WO 01/74263). Claims 18, 20, and 21-23 stand rejected under 35 U.S.C. §103 as obvious from Diamantopoulos in view of Acker (U.S. Patent 5,833,608). No other claims are pending. Claims 15-29 are the subject of this appeal.

Status of Amendments

No amendment subsequent to the final rejection has been entered.

Summary of Claimed Subject Matter

The subject patent application relates to a vascular catheter that includes a displacement detector.

Independent Claim 15 is directed to a vascular catheter (**5** in Fig. 1) having at least one resiliently biased projection (**11** in Figs. 2 and 2a) and at least one displacement detector (**10** in Figs. 2 and 2a) which generates a signal which varies as a function of radial displacement of the at least one resiliently biased projection relative to the longitudinal axis of the catheter (occupied by angioplasty guide wire **19** in Figs. 2 and 2a). *See also the*

discussion in the specification at page 2, lines 8-22; page 3, lines 9-28; page 19, line 1-page 20, line 19; and page 25, line 28-page 26, line 29.

Grounds of Rejection to be Reviewed on Appeal

The two rejections involved in this appeal are:

(1) Claims 15-17, 19 and 24-29 are rejected under 35 U.S.C. 102(a) as being anticipated by Diamantopoulos et al (WO 01/74263).

(2) Claims 18, 20, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diamantopoulos ('263) in view of Acker (U.S. Patent No. 5,833,608).

ARGUMENT

Claims 15-17, 19 and 24-29 are improperly rejected under 35 U.S.C. 102(a) as being anticipated by Diamantopoulos et al (WO 01/74263).

MPEP §§ 2143 and 2143.03 require that the cited prior art references must teach or suggest all claim limitations before a prima facie case of obviousness can be made. The rejection of claims 15-17, 19 and 24-29 is based on a flawed analysis of the Diamantopoulos reference, which simply does not teach or suggest every limitation of the claims.

Independent Claim 15 is directed to a catheter that includes at least one resiliently biased projection and at least one displacement detector. The displacement detector generates a signal which varies as a function of radial displacement of the resiliently biased projection relative to the longitudinal axis of the catheter.

Diamantopoulos does not teach a catheter with such a displacement detector, but instead describes a catheter having thermal sensors which just measures temperature. *See the Abstract.* The Examiner points to discussion in Diamantopoulos regarding vessel mapping based on temperature profile for detection of inflamed or unstable plaque. *Page 3, line 10-page 4, line 3.* Specifically, the Examiner argues that the Diamantopoulos projections move inward and outward while moving along the vessel wall and, at a given moment, sensors "relay a temperature data signal at that particular radial coordinate." But the mere fact that in that specific situation temperature is varying radially is not the same thing as the sensor signal varying as a function of radial displacement. Even if plaque contributes to differences in three-dimensional volume and the temperature may vary with different radial coordinates, the sensor signal in Diamantopoulos is still a function of and responding to changes in temperature, not that radial displacement. Other areas in the vessel may have the same radial

displacement, but would not have the same temperature. Conversely, there are many regions within the vessels in which temperature is relatively constant, and the sensor in Diamantopoulos will not vary with radial displacement. Thus, while the sensor in Diamantopoulos may generate a signal that varies with radial displacement, it certainly does not vary as a function of radial displacement.

The logical fallacy in the Examiner's reasoning is exposed by a simple analogy. If a claim required a sensor which varied as a function of time, it would not be taught by a sensor which varied as a function of light. Light might arguably change as between day and night, but it also changes in response to clouds, rain, shadows, moonlight, etc. And the light sensor signal is not changing as a function of time, for example, it will be unchanging throughout the length of a moonless night or sunny day. It is the same here with the claimed radial displacement sensor and the cited temperature sensor. While in the single very specific circumstance cited, temperature changes with radial displacement, blood temperature also changes with other variables such as displacement from the skin surface, activity level of the person, digestion activity, etc. So Diamantopoulos' temperature sensor is not changing in as a function of and in dependence on radial displacement as required by claim 15.

For at least the foregoing reasons, Claim 15 is patentable over Diamantopoulos. Claims 16-29 depend from claim 15 and are allowable for the same reason.

Claims 18, 20, and 21-23 are improperly rejected as obvious under 35 USC 103(a) from Diamantopoulos ('263) in view of Acker (U.S. Patent No. 5,833,608).

Claims 18 and 20 depend from claim 15 and further specify that the capacitor plate is located on the inner face of the projection. The Examiner rejects those claims as obvious

based on the statement in Diamantopoulos "preferably located on the outer face of the projection" as meaning that the capacitor plates of the sensor can be positioned elsewhere. The Examiner argues that such modification could be employed with a reasonable expectation of success for a sensor that is "fully capable of providing a thermal topography of a vessel wall for diagnostic purposes." *Page 7, lines 8-9.* But claims 18 and 20 refer to a sensor measuring radial displacement, not temperature. The positioning of the capacitor plates in a device measuring temperature – a measurement that is not dependent upon the position of the projection – does not lead to the conclusion that the positioning of capacitor plates in a device measuring radial displacement is likewise as flexible. Thus there can be no expectation of success to modify the placement of capacitor plates of one device that measures temperature to obtain a device that measures radial displacement of the resiliently biased projection relative to the longitudinal axis of the catheter.

Claims 21-23 depend from claim 15 and further specify that the displacement detector is based on an inductance coil and a magnet. The Examiner rejects those claims as obvious from the teachings of Diamantopoulos which is cited as teaching all of the elements of parent claim 15, together with those of Acker which she cites for describing a sensor based on a coil and magnet. But as with the explanation provided above with respect to claim 15, Diamantopoulos fails to teach a catheter including at least one resiliently biased projection and at least one displacement detector that generates a signal which varies as a function of radial displacement of the resiliently biased projection relative to the longitudinal axis of the catheter. Adding Acker for its use of a coil and magnet sensor does not alter that analysis. The position sensor disclosed in Acker is located within a probe and is used to determine a position of the probe itself. The Examiner states precisely that it would be obvious in light of

Acker to modify the Diamantopoulos device to allow for the "determination of the position and orientation of a probe within a patient." *Page 7, lines 17-20.* This determination is different from one made by a sensor that generates a signal that varies as a function of displacement of portion of the probe from the longitudinal axis of the probe itself.

Thus, the rejection of claims 18, 20 and 21-23 as being obvious from Diamantopoulos in view of Acker is incomplete and improper.

Conclusion

For all the foregoing reasons, Applicants submit that all the pending claims in the application are allowable over the art of record and early notice to that effect is respectfully solicited.

Respectfully submitted,
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Claims Appendix

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15. A catheter comprising at least one resiliently biased projection and at least one displacement detector which generates a signal which varies as a function of radial displacement of the at least one resiliently biased projection relative to the longitudinal axis of the catheter.

16. A catheter according to claim 15, wherein the at least one displacement detector is a variable capacitor.

17. A catheter according to claim 16, wherein one plate of the variable capacitor is mounted on the at least one resiliently biased projection.

18. A catheter according to claim 17, wherein the capacitor plate is located on the inner face of the at least one projection, relative to the body of the catheter.

19. A catheter according to claim 16, wherein one plate of the variable capacitor is formed integrally with the at least one resiliently biased projection.

20. A catheter according to claim 19, wherein the capacitor plate is located on the inner face of the at least one projection, relative to the body of the catheter.

21. A catheter according to claim 15, wherein the at least one displacement detector comprises an inductance coil and a magnet.

22. A catheter according to claim 21, wherein the inductance coil is mounted on the at least one resiliently biased projection.

23. A catheter according to claim 21, wherein the inductance coil is integrally formed with the at least one resiliently biased projection.

24. A catheter according to claim 15, wherein each at least one projection is independently biased.

25. A catheter according to claim 15, wherein each at least one detector is mounted on a separate projection.

26. A catheter according to claim 15, wherein the at least one projection comprises a superelastic material.

27. A catheter according to claim 26, wherein the at least one projection comprises a nitinol.

28. A catheter according to claim 15, wherein the at least one resiliently biased projection, when deployed, adopts an arcuate shape along at least part of its length.

29. A catheter according to claim 15, additionally comprising a signal processing system electrically coupled to the at least one displacement detector, which is adapted to detect changes in the signal of the at least one detector.

Evidence Appendix

None.

Related Proceedings Appendix

None.